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Cont 1.

a correlator circuitry configured to correlate a received signal with a template signal to provide an output signal; and

a threshold circuitry configured to provide a first-arriving-pulse signal depending on the relative values of the output signal of the correlator circuitry and a threshold signal derived from a noise floor.

2. The circuitry of claim 1, in which the received signal is received via a multipath propagation medium.

3. The circuitry of claim 2, in which the correlator circuitry further comprises:

a multiplier circuitry configured to provide an output signal that comprises the product of the template signal and the received signal; and

an integrator circuitry configured to integrate the output signal of the multiplier circuitry to provide the output signal of the correlator circuitry.

4. The circuitry of claim 3, in which the threshold circuitry further comprises a comparator circuitry configured to compare the output signal of the correlator circuitry with the threshold signal to provide the first-arriving-pulse signal.

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5. The circuitry of claim 4, in which the first-arriving-pulse signal tends to indicate a time position of a first-arriving pulse in the received signal.

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6. The circuitry of claim 5, in which the received signal comprises an ultra-wideband signal.

7. The circuitry of claim 6, in which the threshold signal comprises a first number added to the product of a second number and a third number.

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8. The circuitry of claim 7, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

9. The circuitry of claim 8, in which the template signal comprises a limited-size template signal.

10. The circuitry of claim 8, in which the template signal comprises a discrete-time signal.

A4

11. A radio-frequency (RF) apparatus, comprising:

a radio-frequency circuitry configured to receive a plurality of pulses that result from a transmission of a radio-frequency pulse in a multipath propagation medium; and

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a detector circuitry configured to discriminate from a noise floor a first-arriving pulse in the plurality of pulses.

12. The apparatus of claim 11, in which the detector circuitry further comprises a correlator circuitry configured to correlate the plurality of pulses with a template signal to provide an output signal.

13. The apparatus of claim 12, in which the detector circuitry further comprises a threshold circuitry configured to provide a first-arriving-pulse signal by comparing the output signal of the correlator circuitry to a threshold signal.

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14. The apparatus of claim 13, wherein the first-arriving-pulse signal tends to indicate a time position of the first-arriving pulse in the plurality of pulses.

15. The apparatus of claim 14, in which the radio-frequency pulse transmitted in the multipath propagation medium comprises an ultra-wideband signal.

16. The circuitry of claim 15, in which the threshold signal comprises a first number added to the product of a second number and a third number.

17. The circuitry of claim 16, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

18. The circuitry of claim 17, in which the template signal comprises a limited-size template signal.

19. The circuitry of claim 17, in which the template signal comprises a discrete-time signal.

20. A communication system, comprising:

a transmitter circuitry configured to transmit a radio-frequency pulse into a multipath propagation medium;

a receiver circuitry configured to receive a plurality of pulses that result from the transmission of the pulse into the multipath propagation medium; and

a detector circuitry configured to discriminate from a noise floor a first-arriving pulse of the plurality of pulses.

21. The system of claim 20, in which the detector circuitry further comprises a correlator circuitry configured to correlate the plurality of pulses with a template signal to provide an output signal.

22. The system of claim 21, in which the detector circuitry further comprises a threshold circuitry configured to provide a first-arriving-pulse signal by comparing the output signal of the correlator circuitry to a threshold signal.

23. The system of claim 22, in which the receiver circuitry comprises a scanning receiver circuitry.

24. The system of claim 23, in which the radio-frequency pulse transmitted in the multipath propagation medium comprises an ultra-wideband signal.

25. The system of claim 24, in which the threshold signal comprises a first number added to the product of a second number and a third number.

26. The system of claim 25, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

27. The system of claim 26, wherein the first-arriving-pulse signal tends to indicate a time position of the first-arriving pulse in the plurality of pulses.

28. The system of claim 27, in which the transmitter circuitry, the receiver circuitry, and the detector circuitry reside within a radar circuitry.

29. The system of claim 28, in which the receiver circuitry couples to a processor circuitry.

30. The system of claim 29, in which the detector circuitry resides within the processor circuitry.

31. The system of claim 28, in which the detector circuitry resides within the receiver circuitry.

32. The system of claim 27, in which the detector circuitry resides within a processor coupled to the receiver circuitry.

33. The system of claim 27, in which the detector circuitry resides within the receiver circuitry.

34. The system of claim 33, in which the receiver circuitry couples to a processor circuitry.

35. The system of claim 27, in which the detector circuitry resides within a first transceiver circuitry.

36. The system of claim 35, in which the receiver circuitry resides within the first transceiver circuitry.

37. The system of claim 36, in which the detector circuitry resides within the first transceiver circuitry.

38. The system of claim 37, in which the transmitter circuitry resides within a second transceiver circuitry.

39. The system of claim 38, in which the receiver circuitry couples to a processor circuitry.

40. The system of claim 39, in which the detector circuitry resides within the processor circuitry.

41. The system of claim 40, in which the detector circuitry resides within the receiver circuitry.

42. A method of detecting a first-arriving pulse, comprising:

correlating a received signal with a template signal by to provide a correlation output signal; and

comparing the correlation output signal and a threshold signal to provide a first-arriving-pulse signal,

wherein the threshold signal is derived from a noise floor.

43. The method of claim 42, in which the received signal is received in a multipath propagation medium.

44. The method of claim 43, in which correlating the received signal and the template signal further comprises:

multiplying the template signal and the received signal to provide a product signal; and

integrating the product output signal to provide the correlation output signal.

45. The method of claim 44, in which comparing the correlation output signal and a threshold signal further comprises using a comparator circuitry configured to compare the correlation output signal and the threshold signal to provide the first-arriving-pulse signal.

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46. The method of claim 45, in which the first-arriving-pulse signal tends to indicate a time position of a first-arriving pulse in the received signal.

47. The method of claim 46, in which the received signal comprises an ultra-wideband signal.

48. The method of claim 47, in which the threshold signal comprises a first number added to the product of a second number and a third number.

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49. The method of claim 48, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

50. The method of claim 49, in which the template signal comprises a limited-size signal.

51. The method of claim 49, in which the template signal comprises a discrete-time signal.

A11

52. A method of detecting a first-arriving pulse among a plurality of pulses, comprising:

transmitting a radio-frequency pulse in a multipath propagation medium;

receiving, by using a radio-frequency circuitry, the plurality of pulses that result from the transmission of the radio-frequency pulse; and

discriminating from a noise floor a first-arriving pulse in the plurality of pulses by using a detector circuitry.

53. The method of claim 52, in which using the detector circuitry further comprises correlating the plurality of pulses with a template signal to provide a correlation output signal.

54. The method of claim 53, which further comprises including within the detector circuitry a threshold circuitry configured to provide a first-arriving-pulse signal by comparing the correlation output signal to a threshold signal.

55. The method of claim 54, which further comprises using the detector circuitry to provide a first-arriving-pulse signal that tends to indicate a time position of the first-arriving pulse in the plurality of pulses.

56. The method of claim 55, in which the radio-frequency pulse transmitted in the multipath propagation medium comprises an ultra-wideband signal.

57. The method of claim 56, in which the threshold signal comprises a first number added to the product of a second number and a third number.

58. The method of claim 57, in which the first number comprises the average of the noise floor, the second number comprises the standard deviation of the noise floor, and the third number comprises a scaling factor.

59. The method of claim 58, in which the template signal comprises a limited-size signal.

60. The method of claim 58, in which the template signal comprises a discrete-time signal.